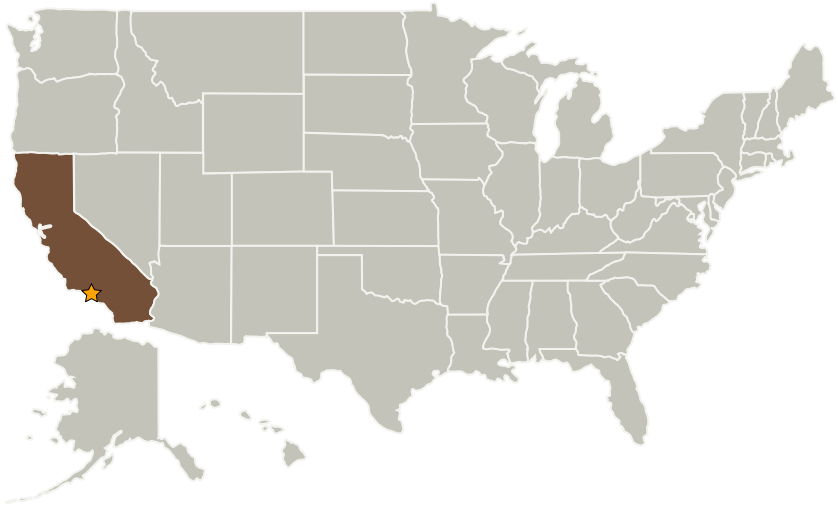
Development of a 3D Flash LADAR Video Camera for Entry, Decent and Landing, Phase I

Completed Technology Project (2007 - 2007)

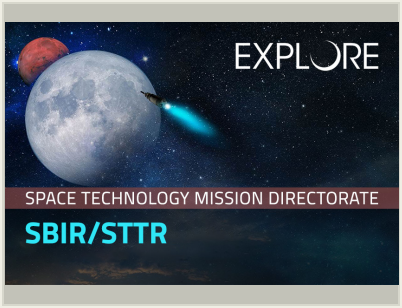
Project Introduction

Advanced Scientific Concepts, Inc. (ASC) has developed a 128 x 128 frame, 3D Flash LADAR video camera capable of a 30 Hz frame rate. Because Flash LADAR captures an entire frame of data from a single pulse of light, platform motion and vibration will not affect the measurements. This is not true for any other laser-ranging system, such as scanning LIDAR. Additionally, with no moving parts, the system is smaller, lighter, and requires less power than traditional approaches. The proposed project will use an ASC camera in a flight test. Hazard identification, and Entry Decent and Landing applications will be investigated. Multiple data sets will be generated at various resolutions and frame rates. This data will be analyzed, and together with inputs from JPL scientists, will be used to breadboard the camera design for NASA applications. Industry inputs will define a pathway for space qualification. An optimized breadboard camera will be fabricated and delivered in Phase II.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Advanced Scientific Concepts, Inc.	Supporting Organization	Industry	Goleta, California



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations
California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.5 Autonomous Rendezvous and Docking
    - TX04.5.1 Relative Navigation Sensors